

REMARKS

Claims 1-36 are pending in the Application. Claims 1-7, 11-19, 23-29 and 31 are rejected under 35 U.S.C. § 103(a). Claims 8-10, 20-22, 30 and 32-36 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants respectfully traverse these rejections for at least the reasons stated below and respectfully request the Examiner to reconsider and withdraw these rejections.

Applicants thank the Examiner for discussing the Office Action with Applicants' attorney on March 8, 2004, and in particular discussing the Examiner's motivation for combining Applicants' Background with Gentry, Jr. et al. (U.S. Patent No. 6,467,008). Applicants address the Examiner's motivation below.

I. REJECTIONS UNDER 35 U.S.C. §103(a):

Claims 1, 4-7, 11, 13, 16-19, 24-25 and 31 are rejected under 35 U.S.C. §103(a) as being unpatentable over Applicants' Background in view of Gentry, Jr. et al. (U.S. Patent No. 6,467,008) (hereinafter "Gentry"). Claims 2-3, 14-15 and 28-29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Applicants' Background in view of Gentry and in further view of Goyal et al. (U.S. Patent No. 6,055,579) (hereinafter "Goyal"). The Examiner has further rejected claim 26 under 35 U.S.C. §103(a) as being unpatentable over Applicants' Background in view of Gentry and in further view of Orr et al. (U.S. Patent No. 4,862,350) (hereinafter "Orr"). Applicants respectfully traverse these rejections for at least the reasons stated below and respectfully request the Examiner to reconsider and withdraw these rejections.

A. The Examiner has not presented any objective evidence for combining Applicants' Background with Gentry.

A *prima facie* showing of obviousness requires the Examiner to establish, *inter alia*, that the prior art references teach or suggest, either alone or in

combination, all of the limitations of the claimed invention, and the Examiner must provide a motivation or suggestion to combine or modify the prior art reference to make the claimed inventions. M.P.E.P. § 2142. The showings must be clear and particular and supported by objective evidence. *In re Lee*, 277 F.3d 1338, 1343, 61 U.S.P.Q.2d 1430, 1433-34 (Fed. Cir. 2002); *In re Kotzab*, 217 F.3d 1365, 1370, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000); *In re Dembiczak*, 50 U.S.P.Q.2d 1614, 1617 (Fed. Cir. 1999). Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. *Id.*

The Examiner's motivation for modifying Applicants' Background with Gentry (1) to have each of the plurality of attached processing units in each of the plurality of processing elements to not interrupt a corresponding processing unit upon completion of each of the one or more remote procedure calls, as recited in claim 1; (2) to have a direct memory access controller configured to poll a status line of each of the plurality of attached processing units to determine if any of the plurality of attached processing units completed its operation during the one or more remote procedure calls, as recited in claim 13; and (3) to poll a status line of each of a plurality of attached processing units to determine if any of the plurality of attached processing units completed its particular operation where the plurality of attached processing units do not interrupt the processing unit upon completion of each of the one or more remote procedure calls, as recited in claim 24, is "to improve the system performance since in heavy traffic the amount of time a host processor may spend processing interrupts may degrade a host computer's responsiveness to other tasks (Col. 14, lines 9-11)." Paper No. 8, pages 3-5. The motivation for each of the above modifications is insufficient to support a *prima facie* case of obviousness since it is merely the Examiner's subjective opinion.

Applicants' Background teaches a symmetric multi-processing (SMP) computer architecture that typically includes a shared memory uniformly accessible to each processing element. Specification, page 1, line 17 – page 2, line 4.

Gentry, on the other hand, teaches a network interface polled by a process operating on a host computer system. Abstract. Gentry further teaches that each time the network interface is polled, the process determines whether any packets have been transferred to the host. Abstract. Gentry further teaches that if so, they are processed. Abstract. Gentry further teaches that interrupts that would normally be issued for the network interface in response to the transfer of packets are suppressed or postponed during the polling mode of operation. Abstract.

The Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying the Applicants' Background to improve the system performance since in heavy traffic the amount of time a host processor may spend processing interrupts may degrade a host's computer's responsiveness to other tasks (the Examiner's motivation). *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002). The Examiner's motivation appears to have been gleaned from the secondary reference (Gentry). The Examiner cites to column 14, lines 9-11 of Gentry as support for the Examiner's motivation. Paper No. 8, pages 3, 4 and 5. This is not evidence as to why one of ordinary skill in the art with the primary reference (Applicants' Background) in front of him would have been motivated to modify the primary reference (Applicants' Background) with a secondary reference (Gentry). The primary reference (Applicants' Background) teaches a symmetric multi-processing computer architecture. The Examiner must provide evidence as to why one of ordinary skill in the art with a primary reference (Applicants' Background) in front of him, which teaches a symmetric multi-processing computer architecture, would be modified with a secondary reference (Gentry) which teaches a network interface polled by a process operating on a host computer system. *See In re Lee*, 61 U.S.P.Q.2d 1430, 1433-1434 (Fed. Cir. 2002); *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). Merely stating what the secondary reference teaches is not evidence for combining the primary reference (Applicants' Background) with a secondary reference (Gentry). *See Id.* Consequently, the Examiner's motivation is insufficient to support a *prima facie* case of obviousness for rejecting claims 1, 4-7, 11, 13, 16-19, 24-25 and 31. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002).

Further, the Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying Applicants' Background to have a direct memory access controller configured to poll a status line of each of the plurality of attached processing units to determine if any of the plurality of attached processing units completed its operation during the one or more remote procedure calls. *Id.* There is no suggestion in Applicants' Background of polling. Neither is there any suggestion in Applicants' Background of a direct memory access controller polling a status line of attached processing units to determine if any of the attached processing units completed its operation during a remote procedure call. Since the Examiner has not submitted objective evidence for modifying Applicants' Background to have a direct memory access controller configured to poll a status line of each of the plurality of attached processing units to determine if any of the plurality of attached processing units completed its operation during the one or more remote procedure calls, the Examiner has not presented a *prima facie* case of obviousness for rejecting claims 11, 13, 16-19, 24-25 and 31. *Id.*

B. Applicants' Background and Gentry, taken singly or in combination, do not teach or suggest the following claim limitations.

Applicants further assert that Applicants' Background and Gentry, taken singly or in combination, do not teach or suggest "wherein said direct memory access controller is configured to interrupt said corresponding processing unit at a synchronization point, wherein said synchronization point occurs after said one or more remote procedure calls are performed" as recited in claim 12 and similarly in claims 23 and 27. The Examiner cites the Abstract and column 3, lines 26-39 of Gentry as teaching the above-cited claim limitation. Paper No. 8, page 6. Applicants respectfully traverse and assert that Gentry instead teaches that after a predetermined period of time has elapsed, that an interrupt may be generated. While Gentry teaches generating an interrupt after a predetermined period of time, Gentry does not teach that this interrupt is generated after one or more remote procedure calls are performed. Therefore, the Examiner has not presented a *prima facie* case of

obviousness since the Examiner is relying upon an incorrect, factual predicate in support of the rejection. *In re Rouffet*, 47 U.S.P.Q.2d 1453, 1455 (Fed. Cir. 1998).

Furthermore, the Examiner's motivation for modifying Applicants' Background with Gentry to have a direct memory access controller be configured to interrupt a corresponding processing unit at a synchronization point when the synchronization point occurs after one or more remote procedure calls are performed, as recited in claim 12 and similarly in claims 23 and 27, is "so that the overhead of processing a separate polling operation or interrupt for each event is avoided." Paper No. 8, page 6. This motivation is insufficient for a *prima facie* case of obviousness since it is merely the Examiner's subjective opinion without any support from objective evidence.

The Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying the Applicants' Background so that the overhead of processing a separate polling operation or interrupt for each event is avoided (Examiner's motivation). *Id.* The Examiner's motivation appears to have been gleaned from the secondary reference (Gentry). This is not a suggestion to combine the primary reference (Applicants' Background) with the secondary reference (Gentry). As stated above, the primary reference (Applicants' Background) teaches a symmetric multi-processing computer architecture. The Examiner must provide evidence as to why one of ordinary skill in the art with the primary reference (Applicants' Background) in front of him, which teaches a symmetric multi-processing computer architecture, would have been motivated to modify the primary reference (Applicants' Background) with the teachings of the secondary reference (Gentry), which, as stated above, teaches a network interface polled by a process operating on a host computer system. *See In re Lee*, 61 U.S.P.Q.2d 1430, 1433-1434 (Fed. Cir. 2002); *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). Merely stating what the secondary reference teaches is not evidence for combining a primary reference (Applicants' Background) with the secondary reference (Gentry). *See Id.* Consequently, the Examiner's motivation is insufficient to support a *prima facie* case

of obviousness for rejecting claims 12, 23 and 27. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002).

As a result of the arguments presented in Sections A and B, Applicants respectfully assert that the Examiner has not presented a *prima facie* case of obviousness for rejecting claims 1, 4-7, 11, 13, 16-19, 24-25 and 31 as being unpatentable over Applicants' Background in view of Gentry.

C. The Examiner has not presented any objective evidence for combining Applicants' Background with Gentry and Goyal.

The Examiner's motivation for modifying Applicants' Background with Gentry and Goyal to have a direct memory access controller comprising a plurality of first level queues for storing a plurality of commands issued by a corresponding processing unit where each of the plurality of first level queues are configured to store a command associated with a different attached processing unit, as recited in claims 2 and 3 and similarly in claims 14-15 and 28-29, is "to at least resolve data dependencies between the processing units (by conditionally queued technique) (at least col. 3, lines 1-6)." Paper No. 8, page 7. This motivation is insufficient to support a *prima facie* case of obviousness since it is merely the Examiner's subjective opinion.

As stated above, Applicants' Background teaches a symmetric multi-processing computer architecture. Specification, page 1, lines 17-18.

As stated above, Gentry, on the other hand, teaches a network interface polled by a process operating on a host computer system. Abstract.

Goyal, on the other hand, teaches a system for synchronization of data processing in a data processing system including multiple command queues. Abstract. Goyal further teaches one or more processing engines associated with one or more command queues. Abstract.

The Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying Applicants' Background to resolve data dependencies between the processing units (Examiner's motivation). *Id.* The Examiner's motivation appears to have been gleaned from one of the secondary references (Goyal). The Examiner cites column 3, lines 1-6 of Goyal as support for the Examiner's motivation. Paper No. 8, page 7. This is not evidence as to why one of ordinary skill in the art with the primary reference (Applicants' Background) in front of him would have been motivated to modify the primary reference (Applicants' Background) with the teachings of the secondary reference (Goyal). The Examiner's motivation is motivation for the secondary reference (Goyal) to solve its problem. This is not a suggestion to combine the primary reference (Applicants' Background) with the secondary references (Gentry and Goyal). As stated above, the primary reference (Applicants' Background) teaches a symmetric multi-processing computer architecture. The Examiner must provide evidence as to why one of ordinary skill in the art with the primary reference (Applicants' Background) in front of him, which teaches a symmetric multi-processing computer architecture would be motivated to modify the primary reference with the teachings of the secondary reference (Gentry), which teaches a network interface polled by a processing operating on a host computer system, with the teachings of the other secondary reference (Goyal), which teaches synchronization of data processing in a data processing system including multiple command queues. *See In re Lee*, 61 U.S.P.Q.2d 1430, 1433-1434 (Fed. Cir. 2002); *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). Merely stating what a secondary reference teaches is not evidence for combining a primary reference (Applicants' Background) with a secondary reference (Gentry) and another secondary reference (Goyal). *See Id.* Consequently, the Examiner's motivation is insufficient to support a *prima facie* case of obviousness for rejecting claims 2-3, 14-15 and 28-29. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002).

Further, the Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying the Applicants' Background to have a direct memory access controller comprise a plurality of first level queues for storing a

plurality of commands issued by a corresponding processing unit where each of the plurality of first level queues are configured to store a command associated with a different attached processing unit. *Id.* There is no suggestion in Applicants' Background of a direct memory access controller comprising queues for storing commands. Neither is there any suggestion in Applicants' Background of a direct memory access controller comprising queues for storing commands where each of the queues are configured to store a command associated with a different attached processing unit. Since the Examiner has not submitted objective evidence for modifying Applicants' Background to have a direct memory access controller comprise a plurality of queues for storing a plurality of commands issued by a corresponding processing unit where each of the queues are configured to store a command associated with a different attached processing unit, the Examiner has not presented a *prima facie* case of obviousness for rejecting claims 2-3, 14-15 and 28-29. *Id.*

D. The Examiner has not presented any objective evidence for combining Applicants' Background with Gentry and Orr.

The Examiner's motivation for modifying Applicants' Background with Gentry and Orr to issue to an attached processing unit an indication to start a particular operation on data where the indication is issued from the direct memory access controller to the particular attached processing unit, as recited in claim 26, is "to free the primary processor for other operations." Paper No. 8, page 7. This motivation is insufficient to support a *prima facie* case of obviousness since it is merely the Examiner's subjective opinion.

As stated above, Applicants' Background teaches a symmetric multi-processing computer architecture. Abstract.

As stated above, Gentry, on the other hand, teaches a network interface polled by a process operating on a host computer system. Abstract.

Orr, on the other hand, teaches an architecture for interconnecting a plurality of remote processors through a primary processor. Abstract.



The Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying Applicants' Background to free the primary processor for other operations (Examiner's motivation). *Id.* The Examiner's motivation appears to have gleaned from one of the secondary references (Orr). This is not evidence as to why one of ordinary skill in the art with a primary reference (Applicants' Background) in front of him would have been motivated to modify the primary reference (Applicants' Background) with the teachings of the secondary references (Gentry and Orr). The Examiner's motivation is motivation for the secondary reference (Orr) to solve its problem. This is not a suggestion to combine the primary reference (Applicants' Background) with the secondary reference (Gentry) and the other secondary reference (Orr). As stated above, the primary reference (Applicants' Background) teaches a symmetric multi-processing computer architecture. The Examiner must provide evidence as to why one of ordinary skill in the art with the primary reference (Applicants' Background) in front of him, which teaches a symmetric multi-processing computer architecture, would be motivated to modify the primary reference with the teachings of the secondary reference (Gentry), which teaches a network interface polled by a process operating on a host computer system, with the other secondary reference (Orr), which teaches an architecture for interconnecting a plurality of remote processors to a primary processor. *See In re Lee*, 61 U.S.P.Q.2d 1430, 1433-1434 (Fed. Cir. 2002); *In re Kotzab*, 55 U.S.P.Q.2d 1313, 1318 (Fed. Cir. 2000). Merely stating what a secondary reference teaches is not evidence for combining a primary reference (Applicants' Background) with the secondary references (Gentry and Orr). *See Id.* Consequently, the Examiner's motivation is insufficient to support a *prima facie* case of obviousness for rejecting claim 26. *In re Lee*, 61 U.S.P.Q.2d 1430, 1434 (Fed. Cir. 2002).

Further, the Examiner must submit objective evidence and not rely on her own subjective opinion in support of modifying Applicants' Background to issue to an attached processing unit an indication to start a particular operation on data where the indication is issued from a direct memory access controller to that attached processing unit. *Id.* There is no suggestion in Applicants' Background of issuing an indication

to start a particular operation on data to an attached processing unit from a direct memory access controller. Since the Examiner has not submitted objective evidence for modifying Applicants' Background to issue an indication to start a particular operation on data from a direct memory access controller to an attached processing unit, the Examiner has not presented a *prima facie* case of obviousness for rejecting claim 26. *Id.*

II. ALLOWABLE SUBJECT MATTER:

The Examiner has objected to claims 8-10, 20-22, 30 and 32-36 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Paper No. 8, page 8. Applicants appreciate the indication of allowability of claims 8-10, 20-22, 30 and 32-36.

III. CONCLUSION

As a result of the foregoing, it is asserted by Applicants that claims 1-36 in the Application are in condition for allowance, and Applicants respectfully request an allowance of such claims. Applicants respectfully request that the Examiner call Applicants' attorney at the below listed number if the Examiner believes that such a discussion would be helpful in resolving any remaining issues.

Respectfully submitted,

WINSTEAD SECHREST & MINICK P.C.

Attorneys for Applicants

By: 

Kelly K. Kordzik  
Reg. No. 36,571  
Robert A. Voigt, Jr.  
Reg. No. 47,159

P.O. Box 50784  
Dallas, Texas 75201  
(512) 370-2832

AUSTIN\_1\245402\5  
7047-P405US